DIRECTORY OF LEADING
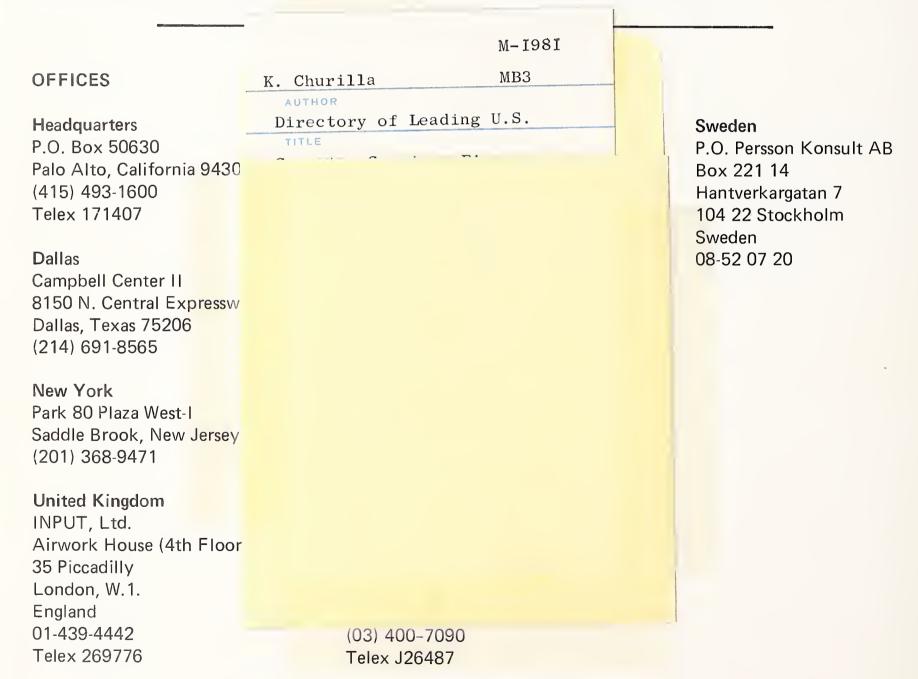# U.S. COMPUTER SERVICES FIRMS

INPUT

ABOUT INPUT

INPUT provides planning information, analysis, and recommendations to managers and executives in the information processing industries. Through market research, technology forecasting, and competitive analysis, INPUT supports client management in making informed decisions. Continuing services are provided to users and vendors of computers, communications, and office products and services.
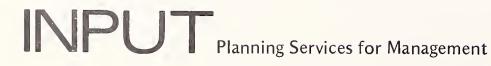
The company carries out continuous and in-depth research. Working closely with clients on important issues, INPUT's staff members analyze and interpret the research data, then develop recommendations and innovative ideas to meet clients' needs. Clients receive reports, presentations, access to data on which analyses are based, and continuous consulting.

Many of INPUT's professional staff members have nearly 20 years'experience in their areas of specialization. Most have held senior management positions in operations, marketing, or planning. This expertise enables INPUT to supply practical solutions to complex business problems.

Formed in 1974, INPUT has become a leading international consulting firm. Clients include over 100 of the world's largest and most technically advanced companies.

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Directory of Leading U.S.

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SEPTEMBER 1981

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DIRECTORY OF LEADING U.S. COMPUTER SERVICES FIRMS

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DIRECTORY OF LEADING U.S. COMPUTER SERVICES FIRMS

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EXHIBITS

INPUT

INPUT

I INTRODUCTION

I   INTRODUCTION

- This directory is INPUT's second annual listing of the leading U.S. computer services firms.

  - The directory contains a list of all vendors who realized more than $10 million in noncaptive U.S. computer services revenue in calendar year 1980.

  - For the first time, the directory includes revenues for the previous calendar year, so that growth can be readily observed.

- This list was compiled for several reasons.

  - The data are a significant factor in INPUT's market estimates of the U.S. computer services market.

  - The list includes all the leading companies which are of interest to clients of INPUT's Company Analysis and Monitoring Program (CAMP). Many of these companies are highlighted with in-depth reviews by that service.

- Research on candidates for the directory is conducted on a continuous basis throughout the year.

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- INPUT monitors the activities of over 3,000 companies engaged in the information processing industry. Included in the files maintained on these companies are promotional and product bulletins, annual reports, press releases, clippings from periodicals, interview questionnaires, and contact reports with company management and industry experts.

- Companies whose growth indicates potential for inclusion in the directory receive special attention. Questionnaires are mailed to these companies and are followed up by telephone interviews.

- Information is also gathered from a variety of independent sources to verify information gathered from private companies.

- The revenue data reported in this study, unless noted otherwise, include only the following.

  - U.S. revenues. Only revenues derived from services sold in the U.S. are included. All foreign computer services revenues are excluded.

  - Computer services revenues. Revenues from processing services, software products, and professional services are included in computer services revenues. Revenues from turnkey systems, hardware, tele-communications, and field engineering services are specifically excluded.

  - Calendar year revenues only are included. Approximately 30% of the companies have fiscal years which do not coincide with calendar years. Their revenues have been adjusted to a calendar year basis for this report.

  - Noncaptive revenues. Revenues which are available to all vendors in a competitive marketplace are included. Captive revenues, which are derived from sales to parent or affiliated organizations, are excluded.

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- All revenue data were rounded to the nearest thousand dollars when gathered and tabulated, but rounded to the nearest million dollars when reported in this study.

  - Rounding to the nearest thousand was done to insure the highest degree of accuracy in collecting data from sources such as annual reports or interviews, which are known to be accurate.

  - The growth rates from 1979 to 1980 were calculated based on the data collected at the thousand dollar accuracy level.

  - Rounding to the nearest million was done in this report to normalize for the lesser degree of accuracy inherent in many cases where the data are estimated by INPUT. INPUT believes that all data are reasonably accurate to the nearest million dollars.

  - Revenues reported for subsidiaries of large corporations, computer manufacturers, and CPA firms are generally subject to a wider margin of error than for other companies.

  - Revenues for some companies have been reported for major categories (i.e., professional services), but not for subcategories (i.e., commercial professional services) where the finer estimate of revenue sources could not be ascertained with a high degree of accuracy.

- Companies that are not exclusively involved in computer services are identified according to the following criteria:

  - If a division or subsidiary markets all computer services for a company and is generally known by the name of that group then it will be identified by that name rather than by the parent's name. Examples are McDonnell Douglas Automation Company (MCAUTO), Boeing Computer Services (BCS), and General Electric Information Services Company (GEISCO).

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- If more than one division or subsidiary markets computer services the organization will be identified by the parent's name. Examples are Control Data Corporation (includes SBC, Cybernet, Arbitron, and others), and Bank of America (includes Decimus Corp. and Corporate Electronic Banking). The parent named may itself be a subsidiary; for example, United Information Systems.

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II COMPUTER SERVICES

II COMPUTER SERVICES

A. SALES LEADERS

- One hundred and seventy nine companies qualified for inclusion in this year's edition of INPUT's directory of vendors with more than $10 million in U.S. noncaptive computer services revenue, as shown in Exhibit II-1.

    - Twenty-two companies qualified for the list for the first time this year.

    - Thirty-two companies, which qualified in the past, are also included for the first time. These companies were not included previously because insufficient data were available to determine their qualifications.

        - An INPUT study conducted this year on energy related computer services identified for the first time the computer services components of the revenues generated by four seismic processing firms. All easily qualified for the directory.

        - Certified public accounting firms were subject to special research this year and as a consequence five more were added to the directory. These firms all offer professional services to the commercial sector.

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EXHIBIT II-1

THE INPUT DIRECTORY OF THE LARGEST
VENDORS OF COMPUTER SERVICES

REVENUE RANK 1980	REVENUE RANK 1979	COMPANY	NONCAPTIVE U.S. REVENUE ($ MILLIONS) 1979	NONCAPTIVE U.S. REVENUE ($ MILLIONS) 1980	1979/1980 PERCENT CHANGE	GROWTH RANK
1	1	International Business Machines Corporation (IBM)	$525	$730	39%	38
2	2	Control Data Corporation (CDC)	478	560	17	125
3	3	Computer Sciences Corporation (CSC)	368	465	27	79
4	4	Automatic Data Processing, Inc. (ADP)	348	435	25	85
5	5	Electronic Data Systems Corporation (EDS)	305	388	28	76
6	6	General Electric Information Services Company	175	202	16	137
7	7	Tymshare, Inc.	159	176	11	151
8	8	System Development Corporation (SDC)	158	172	9	156
9	9	Arthur Andersen and Company	128	164	28	72
10	10	NCR Corporation	125	139	11	147
11	11	McDonnell Douglas Automation Company (MCAUTO)	121	137	13	141
12	12	Bradford National Corporation	110	130	18	122
13	13	Planning Research Corporation (PRC)	104	125	20	110
14	14	Mitre Corporation	99	124	25	84
15	15	National CSS, Inc.	99	123	25	94
16	16	Informatics, Inc.	97	106	9	155
17	17	Boeing Computer Services, Inc. (BCS)	86	106	24	95
18	19	Chase Manhattan Bank	75	100	33	52
19	18	United Information Systems	82	99	21	109
20	21	Shared Medical Systems Corporation	70	91	29	69
21	28	Texas Instruments	59	87	48	26
22	20	Securities Industry Automation	71	86	21	103
23	29	Western Geophysical	59	82	39	39
24	23	Honeywell, Inc.	69	78	13	140
25	27	Geosource, Inc.	62	77	25	86
26	24	Bank of America Corp.	63	74	18	120
27	25	Sperry Corporation	62	70	13	142
28	49	Anacomp, Inc.	36	68	91	6
29	30	National Data Corporation	54	67	25	92
30	22	Burroughs Corporation	70	66	(6)	173
31	26	TRW Information Services	62	62	0	170
32	32	CCH Computax, Inc.	48	61	26	81
33	31	Xerox Computer Services	50	59	17	124
34	37	Quotron Systems, Inc.	43	57	32	59
35	34	Comshare, Inc.	47	55	17	127
36	42	Digital Equipment Corporation (DEC)	40	54	35	50
37	36	American Management Systems, Inc.	44	53	20	111
38	38	Grumman Data Systems	43	53	25	83
39	40	University Computing Company (WYLY)	41	53	28	73
40	33	Equifax, Inc.	47	53	13	143

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REVENUE RANK		COMPANY	NONCAPTIVE U.S. REVENUE ($ MILLIONS)		1979/1980 PERCENT CHANGE	GROWTH RANK
1980	1979		1979	1980		
41	35	First Data Resources Inc.	$46	$50	9%	157
42	43	Peat, Marwick, Mitchell & Co.	40	50	25	87
43	44	Nielsen (A.C.) Company	40	47	18	123
44	39	Systems Consultants, Inc.	42	46	10	153
45	133	Citicorp	11	45	309	1
46	47	Telecredit, Inc.	37	44	18	121
47	46	Reynolds and Reynolds Company, The	37	43	16	134
48	45	Bunker Ramo Corporation	40	43	8	159
49	41	Trans Union Corporation	41	43	6	163
50	50	Management Science America, Inc.	32	41	26	82
51	48	Data Resources, Inc (DRI)	36	41	13	139
52	52	Mellon Bank Data Center	30	40	33	53
53	70	C.A.C.I., Inc.	22	40	79	10
54	59	Westinghouse Corporation	27	38	41	34
55	53	Science Applications, Inc.	30	37	25	93
56	57	Martin Marietta Data Systems	29	37	28	75
57	51	Systems and Computer Technology	31	37	19	117
58	54	Arthur D. Little, Inc.	30	37	23	97
59	61	Ernst and Whinney	26	37	40	35
60	58	Seismographic Services Corporation	29	36	26	80
61	74	Sun Information Services Company	20	35	75	12
62	63	Hewlett-Packard Company	25	34	36	49
63	60	Advo Systems, Inc. (ADVO)	26	32	20	116
64	62	Systematics	26	31	22	100
65	66	Manufacturing Data Systems, Inc. (MDSI)	25	30	24	96
66	67	Fast-Tax	24	30	25	88
67	64	GTE Telenet Information Systems	25	29	16	135
68	73	Digicon, Inc.	21	29	39	40
69	55	Statistical Tabulating Corporation	30	28	(8)	174
70	82	Lambda Technology	18	27	50	23
71	68	Logicon Inc.	23	27	17	128
72	69	Ohio Cooperative Library Corporation (OCLC)	23	27	18	119
73	86	NLT Computer Services Corporation	18	26	50	22
74	80	Dyatron Corporation	19	26	36	45
75	99	Cable Data	16	26	65	15
76	77	Bolt Beranek and Newman, Inc.	20	25	27	78
77	78	Compuserve, Inc. (Compuserv Network)	19	25	30	66
78	56	Optimum Systems, Inc. (OSI)	30	25	(17)	177
79	87	Mead Corporation	18	24	36	46
80	96	Pansophic Systems, Inc.	16	24	50	24

(Continued)

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REVENUE RANK		COMPANY	NONCAPTIVE U.S. REVENUE ($ MILLIONS)		1979/1980 PERCENT CHANGE	GROWTH RANK
1980	1979		1979	1980		
81	83	Kirchman Corporation	$18	$24	33%	54
82	75	Arthur Young and Co.	20	24	20	112
83	90	STSC, Inc.	17	23	35	51
84	81	Coopers and Lybrand	19	23	21	104
85	72	U.S. Datacorp	21	23	9	154
86	88	Applied Data Research	17	23	31	62
87	89	SEI Corporation	17	22	29	67
88	91	Technican Medical Information Systems	17	22	30	64
89	108	Computer Task Group, Inc.	14	22	59	18
90	93	Insurance Systems of America	17	22	32	60
91	95	Analysts International Corporation	17	21	28	70
92	112	Cullinane Corporation	13	21	62	16
93	84	DASD Corporation	18	21	17	129
94	85	Dow Jones Information Services, Inc.	18	21	17	130
95	100	Advanced Systems, Inc.	15	21	36	47
96	76	Rapidata, Inc.	20	21	5	165
97	106	Computer Sharing Services, Inc.	14	20	43	31
98	79	CGA Computer Associates	19	20	5	166
99	94	International Computaprint Corporation	17	20	21	105
100	71	Computer Network Corporation (COMNET)	22	20	(10)	175
101	110	Computer Company, The	13	19	46	27
102	92	Standard and Poors Corporation	17	19	12	146
103	111	Litton Mellonics	13	18	40	36
104	113	BDM International	13	18	41	33
105	65	National Sharedata Corporation	25	18	(28)	179
106	115	Telos Computing	13	18	44	29
107	107	First Computer Corporation	14	18	29	68
108	97	Lockheed Information Systems	16	18	13	144
109	105	Cincom Systems, Inc.	15	18	21	108
110	98	Keane Associates, Inc.	16	17	10	152
111	103	Calculon Corporation	15	17	13	138
112	138	Softech Inc.	11	17	57	19
113	126	Computer Data Systems	12	16	38	42
114	102	Agency Records Control, Inc.	15	16	6	162
115	143	Tandy Corporation	10	16	60	17
116	179	Science Management Corporation	4	16	300	2
117	114	Touche Ross & Co.	13	16	23	98
118	127	Seiscom Delta	12	16	37	43
119	120	Policy Management Systems	12	16	33	57
120	121	Datacrown, Inc.	12	16	31	61

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REVENUE RANK		COMPANY	NONCAPTIVE U.S. REVENUE ($ MILLIONS)		1979/1980 PERCENT CHANGE	GROWTH RANK
1980	1979		1979	1980		
121	162	Technology Development of California	$ 9	$15	79%	11
122	116	Pentamation Enterprises, Inc.	13	15	21	107
123	122	OAO	12	15	25	89
124	104	Data General Corporation	15	15	0	171
125	136	Software Design Associates, Inc.	11	15	36	48
126	117	Data Communications Corporation	12	15	19	118
127	137	Cycare Systems	11	15	37	44
128	173	Continuum	7	15	123	3
129	123	Information Science, Inc.	12	15	21	106
130	167	McCormack and Dodge	7	14	99	5
131	130	Comdata Network	11	14	28	71
132	118	Bowne Information Systems, Inc.	12	14	17	133
133	134	Dial Computer Systems Corporation	11	14	27	77
134	124	Booz-Allen and Hamilton, Inc.	12	14	17	131
135	131	Cutler Williams, Inc.	11	14	25	90
136	132	Safeguard Business Systems, Inc.	11	14	25	91
137	141	Science Dynamics Corporation	10	14	33	58
138	135	Pharmaceutical Card Systems	11	13	22	102
139	151	Affiliated Computer Systems	9	13	42	32
140	144	Intermetrics, Inc.	10	13	30	65
141	125	Associated Press	12	13	8	158
142	119	Information Systems Design, Inc.	12	13	7	161
143	161	Compuware	9	13	52	21
144	101	Rand Information Systems, Inc.	15	13	(17)	178
145	163	Mathematica Inc.	8	12	44	28
146	153	DST, Inc.	9	12	33	55
147	160	Systems and Programming Resources, Inc.	9	12	40	37
148	174	Systems and Applied Sciences	7	12	85	8
149	168	Software AG of North America, Inc.	7	12	67	14
150	145	Cybernetics and Systems	10	12	20	113
151	146	Medicus Systems Corporation	10	12	20	114
152	128	AGS Computers, Inc.	12	12	4	167
153	148	Software International Corporation	10	12	23	99
154	129	Remote Computing Corporation	12	12	2	169
155	109	Keydata Corporation	13	12	(13)	176
156	149	Accounting Corporation Of America	10	11	20	115
157	140	Automated Concepts	10	11	11	148
158	154	Deloitte, Haskins and Sells	9	11	22	101
159	176	Sterling Systems	6	11	83	9
160	150	Price Waterhouse & Co.	10	11	16	136

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REVENUE RANK		COMPANY	NONCAPTIVE U.S. REVENUE ($ MILLIONS)		1979/1980 PERCENT CHANGE	GROWTH RANK
1980	1979		1979	1980		
161	164	Monchik-Webber	$ 8	$11	31%	63
162	142	Scientific Computers Inc.	10	11	7	160
163	139	Advanced Computer Techniques Corporation	10	11	3	168
164	172	Online Business Systems	7	11	54	20
165	170	Spiridillis Associates	7	11	50	25
166	155	Computer Horizons	9	11	17	132
167	165	Systems Research Laboratories	8	10	33	56
168	175	Amherst Associates, Inc.	6	10	68	13
169	158	Intel Systems Corporation	9	10	17	126
170	171	Computer Associates, Inc.	7	10	43	30
171	147	Safecom, Inc.	10	10	0	172
172	156	Sigma Data Computing	9	10	11	149
173	157	Proprietary Computer Systems	9	10	11	150
174	169	Astradyne Computer Industries	7	10	39	41
175	178	Apple Computer	5	10	100	4
176	177	Execucom Systems Corporation	5	10	91	7
177	152	Poorman-Douglas Corporation	9	10	6	164
178	159	Neshaminey Valley Information Processing	9	10	12	145
179	166	Boole and Babbage	8	10	28	74

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- The remaining 23 new companies were omitted primarily because they were private companies which barely exceeded the $10 million in revenues required for the list.

  - Seven companies were removed from the list for reasons such as being acquired, divestiture of services, and declining service revenues.

  - The net effect is that 15 new companies were added to the base of 164 qualified firms, for an increase of 9% in the number of companies with over $10 million in U.S. noncaptive computer services revenue.

- The vendors included in this list sell nearly 60% of all U.S. computer services.

- The largest vendor, IBM, has only a 5% share of the U.S. market for computer services.

  - Most of IBM's computer services revenues come from the sale of software products. The balance come from professional services. IBM does not sell processing services in the U.S. as it does in foreign markets.

  - IBM's growth in computer services is expected to continue at a high rate but not as high as the 39% produced in 1980.

- The largest independent vendor of computer services in the U.S. in 1980 was Computer Sciences Corporation (CSC). It garnered a 3% share of the U.S. market with its revenues of $465 million in 1980.

  - CSC leads the professional services industry with a 10% share of the U.S. market.

  - Ninety-five percent of CSC's professional services are sold to the government sector.

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- The top 10 companies of the 4,350 companies providing computer services in the U.S. have a 23% share of that market.

B. GROWTH LEADERS

- Forty-two companies generated computer services revenues which exceeded $50 million in 1980. Of those companies, the 10 with the largest increases over 1979 in sales of U.S. computer services are shown in Exhibit II-2.

- Anacomp leads the list with a 91% increase in revenue in 1980.

    - A substantial portion of this growth came from acquisitions.

    - Many of the acquisitions are involved in micrographic processing services.

- Texas Instruments produced the greatest increase in sales without the benefit of acquisitions, with 48% growth in 1980.

    - Nearly 80% of TI's computer services revenue comes from seismic processing services.

    - A large portion of the remainder is derived from software sales.

- Another rapidly growing independent computer services firm is Quotron Systems.

    - Quotron's major business is the provision of financial information, such as stock quotations, to the financial community.

    - All of Quotron's computer services revenue is derived from remote computing services.

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EXHIBIT II-2

LARGEST INCREASES IN REVENUES OF
COMPUTER SERVICES OVER $50 MILLION

RANK	COMPANY	NONCAPTIVE U.S. REVENUE ($ MILLIONS)		1979/1980 PERCENT CHANGE
		1979	1980	
1	Anacomp, Inc.	$36	$68	91%
2	Texas Instruments	59	87	48
3	International Business Machines Corporation (IBM)	525	730	39
4	Western Geophysical	59	82	39
5	Digital Equipment Corporation (DEC)	40	54	35
6	Chase Manhattan Bank	75	100	33
7	Quotron Systems, Inc.	43	57	32
8	Shared Medical Systems Corporation	70	91	29
9	Arthur Andersen and Company	128	164	28
10	University Computing Company (WYLY)	41	53	28

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- The list of companies with the largest increases in sales of computer services shown in Exhibit II-2 includes a diverse mix of companies.

  - 14 -

  - Two computer manufacturers.

  - A semiconductor manufacturer.

  - A major bank.

  - A "Big Eight" CPA firm.

  - Three of the vendors offer industry specific services.

    - Western Geophysical: petrochemical industry.

    - Quotron Systems: financial industry.

    - Shared Medical Systems: medical industry.

  - One, Anacomp, offers mainly functionally specific services.

  - Only one company, University Computing Company, is an independent general purpose computer services firm.

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III PROCESSING SERVICES

III PROCESSING SERVICES

A. TOTAL PROCESSING SERVICES

- Computer services companies with over $10 million in revenue generated 58% of total U.S. processing services revenue.

- Automatic Data Processing (ADP) is the largest vendor of processing services in the U.S., as shown in Exhibit III-1.

  - ADP's revenue of $420 million represents a 6% share of the processing services marketplace.

  - ADP is engaged in all three processing services modes, but is best known for its batch processing payroll services.

- Control Data Corporation (CDC) is the largest vendor of processing services which is not primarily a service vendor.

  - CDC's major businesses are computer manufacturing and financial services.

  - CDC's largest source of computer services revenue is The Service Bureau Company (SBC) which accounts for 43% of the company's computer services revenue.

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EXHIBIT III-1

LARGEST VENDORS OF PROCESSING SERVICES

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REVENUE RANK		COMPANY	NONCAPTIVE U.S. REVENUE ($ MILLIONS)		1979/1980 PERCENT CHANGE
1980	1979		1979	1980	
1	2	Automatic Data Processing, Inc. (ADP)	$338	$420	24%
2	1	Control Data Corporation (CDC)	353	310	16
3	3	Electronic Data Systems Corporation (EDS)	230	293	28
4	4	General Electric Information Services Company	167	193	16
5	5	Tymshare, Inc.	151	166	10
6	9	Computer Sciences Corporation (CSC)	95	128	35
7	7	Bradford National Corporation	102	122	19
8	6	McDonnell Douglas Automation Company (MCAUTO)	105	119	13
9	8	National CSS, Inc.	96	115	20
10	14	Chase Manhattan Bank	69	93	34
11	13	Shared Medical Systems Corporation	70	91	29
12	11	United Information Systems	75	91	20
13	10	NCR Corporation	80	88	10
14	12	Securities Industry Automation	71	86	21
15	19	Western Geophysical	59	82	39
16	18	Geosource, Inc.	62	77	25
17	16	Boeing Computer Services, Inc. (BCS)	62	75	20
18	15	Bank of America Corp.	63	74	18
19	26	Texas Instruments	44	69	57
20	20	National Data Corporation	54	67	25
21	17	TRW Information Services	62	62	0
22	21	CCH Computax, Inc.	48	61	26
23	27	Quotron Systems, Inc.	43	57	32
24	22	Xerox Computer Services	48	55	16
25	24	Comshare, Inc.	47	55	17
26	36	Anacomp, Inc.	31	54	77
27	23	Equifax, Inc.	47	53	13
28	25	First Data Resources, Inc.	46	50	9
29	32	Informatics, Inc.	39	49	24
30	31	Planning Research Corporation (PRC)	40	48	20
31	29	Neilsen (A.C.) Company	40	47	18
32	82	Citicorp	11	45	309
33	34	Telecredit, Inc.	37	44	18
34	33	Reynolds and Reynolds Company, The	37	43	16
35	30	Bunker Ramo Corporation	40	43	8
36	28	Trans Union Corporation	41	43	6
37	37	Mellon Bank Data Center	30	40	33
38	35	Data Resources, Inc. (DRI)	32	37	13
39	43	System Development Corporation (SDC)	25	36	44
40	40	Seismographic Services Corporation	29	36	26

(Continued)

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EXHIBIT III-1 (CONT.)

LARGEST VENDORS OF PROCESSING SERVICES

REVENUE RANK		COMPANY	NONCAPTIVE U.S. REVENUE ($ MILLIONS)		1979/1980 PERCENT CHANGE
1980	1979		1979	1980	
41	41	Advo Systems, Inc. (ADVO)	$26	$32	20%
42	42	Systematics	26	31	22
43	47	Fast-Tax	24	30	25
44	44	GTE Telenet Information Systems	25	29	16
45	46	Manufacturing Data Systems, Inc. (MDSI)	24	29	17
46	38	Statistical Tabulating Corporation	30	28	(8)
47	53	Digicon, Inc.	19	27	39
48	48	Ohio Cooperative Library Corporation (OCLC)	23	27	18
49	57	NLT Computer Services Corporation	18	26	50
50	54	Dyatron Corp.	19	26	36
51	50	University Computing Company (WYLY)	22	26	18
52	59	Martin Marietta Data Systems	17	26	47
53	67	Cable Data	16	26	65
54	52	Compuserve, Inc. (Compuserv Network)	19	25	30
55	55	Westinghouse Corporation	19	25	29
56	83	Sun Information Services Company	11	25	123

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MMB3R

- Cybernet, another subsidiary, represents 30% of computer services revenues.

- Both Cybernet and SBC are primarily processing services organizations. Arbitron and Ticketron are also engaged in this business.

- Electronic Data Systems (EDS), the third largest vendor of processing services, derives a major portion of its revenue from clients in the insurance and banking industries. Much of this revenue is facilities management.

  - Approximately 30% of EDS's revenue comes from federal, state, and local governments.

  - In addition to processing services, EDS is a major vendor of professional services.

- The 10 largest processing services companies share 23% of the entire U.S. processing services marketplace.

  - Five firms are primarily computer services companies.

  - The remainder are owned by a computer manufacturer, a manufacturer, an aircraft manufacturer, a publishing company, and a bank.

  - One company, Tymshare, is rapidly becoming a major force in the data communications business through its subsidiary, Tymnet.

- The fastest growing processing services company is Citicorp, as shown in Exhibit III-2.

  - Citicorp, based in New York City, is the second largest bank in the U.S.

  - Virtually all of Citicorp's growth in processing services came from a number of acquisitions in 1980.

INPUT

EXHIBIT III-2

LARGEST INCREASES IN REVENUES OF
PROCESSING SERVICES OVER $25 MILLION

RANK	COMPANY	NONCAPTIVE U.S. REVENUE ($ MILLIONS)		1979/1980 PERCENT CHANGE
		1979	1980	
1	Citicorp	11	45	309%
2	Sun Information Services Company	11	25	123
3	Anacomp, Inc.	31	54	77
4	Cable Data	16	26	65
5	Texas Instruments	44	69	57
6	NLT Computer Services Corporation	18	26	50
7	Martin Marietta Data Systems	17	26	47
8	System Development Corporation (SDC)	25	36	44
9	Digicon, Inc.	19	27	39
10	Western Geophysical	59	82	39

INPUT
MMB3R

- Sun Information Services was the fastest growing processing services firm whose growth was primarily internal (non-acquisition).

    - Sun is a subsidiary of a major petroleum company.

- Anacomp's growth is largely through acquisitions.

- Cable Data provides batch processing accounting services to the cable TV industry.

- Texas Instruments, Digicon, and Western Geophysical derive most of their growth from seismic data processing.

- NLT Computer Services Corporation derived more than half of its growth in 1980 from acquisitions.

    - The balance of its growth came from providing processing services to wholesale distributors, banks, the beverage industry, nonprofit fund raisers, law firms, physicians, and general business operations.

    - It is a subsidiary of NLT Corporation, a large holding company engaged in insurance, broadcasting, amusement parks, hotel services, and real estate development.

- System Development Corporation was acquired by the Burroughs Corporation in 1980. SDC's growth came from government funded health insurance.

- The over $10 million processing service companies grew 18% in 1980 which was significantly greater than the 15% growth achieved by the under $10 million processing services companies.

INPUT

B. REMOTE COMPUTING SERVICES

- Control Data Corporation was the largest vendor of remote computing services in 1980, as shown in Exhibit III-3.

- ADP was the largest independent remote computing company.

- Remote computing services accounted for 50% of all processing services and 28% of all computer services in 1980.

- The 10 largest RCS vendors had 28% of all RCS revenues in 1980.

- Citicorp had the largest growth in RCS revenues, as shown in Exhibit III-4.

- In addition to Citicorp, two other companies holding bank charters, Chase Manhattan Bank and Bradford National Corporation, were among the 10 fastest growing companies offering RCS.

- The weighted average growth rate of RCS services in companies with over $10 million in revenue was 22% in 1980.

- Dyatron, formerly C.A.R.S., turned in an excellent growth record in spite of the problems besetting the U.S. auto dealers which represent their primary market.

- Half of the vendors on this list are owned by Fortune 500/50 parents.

C. BATCH SERVICES

- ADP maintained its position by a wide margin as the largest batch processing company in the U.S., as shown in Exhibit III-5.

- 21 -

EXHIBIT III-3

LARGEST VENDORS OF REMOTE COMPUTING SERVICES

REVENUE RANK		COMPANY	NONCAPTIVE U.S. REVENUE ($ MILLIONS)		1979/1980 PERCENT CHANGE
1980	1979		1979	1980	
1	1	Control Data Corporation (CDC)	$230	$272	18%
2	2	General Electric Information Services Company	167	193	16
3	3	Automatic Data Processing, Inc. (ADP)	118	150	27
4	7	Chase Manhattan Bank	69	93	34
5	5	United Information Systems	75	91	20
6	6	Tymshare, Inc.	75	90	20
7	4	Computer Sciences Corporation (CSC)	77	88	15
8	9	National CSS, Inc.	62	76	23
9	11	Bradford National Corporation	49	63	28
10	10	McDonnell Douglas Automation Company (MCAUTO)	57	63	10
11	8	TRW Information Services	62	62	0
12	14	Boeing Computer Services, Inc. (BCS)	44	59	33
13	15	Quotron Systems, Inc.	43	57	32
14	12	Xerox Computer Services	48	55	16
15	20	National Data Corporation	40	52	32
16	13	First Data Resources, Inc.	46	50	9
17	16	Nielsen (A.C.) Company	40	47	18
18	17	Comshare, Inc.	40	45	13
19	18	NCR Corporation	40	44	10
20	21	Planning Research Corporation (PRC)	36	43	20
21	19	Bunker Ramo Corporation	40	43	8
22	22	Telecredit, Inc.	35	41	19
23	23	Equifax, Inc.	33	37	12
24	24	Data Resources, Inc. (DRI)	32	37	13
25	25	GTE Telenet Information Systems	25	29	16
26	26	Manufacturing Data Systems, Inc. (MDSI)	24	29	17
27	27	Ohio Cooperative Library Corporation (OCLC)	23	27	18
28	30	Dyatron Corp.	19	26	36
29	33	Martin Marietta Data Systems	17	26	47
30	29	Compuserve, Inc. (Compuserv Network)	19	25	30
31	48	Citicorp	11	25	123
32	49	Sun Information Services Company	11	25	123

INPUT
MMB3R

EXHIBIT III-4

- 23 -

LARGEST INCREASES IN REVENUES OF
REMOTE COMPUTING SERVICES OVER $25 MILLION

RANK	COMPANY	NONCAPTIVE U.S. REVENUE ($ MILLIONS)		1979/1980 PERCENT CHANGE
		1979	1980	
1	Citicorp	$11	$25	123%
2	Sun Information Services Company	11	25	123
3	Martin Marietta Data Systems	17	26	47
4	Dyatron Corporation	19	26	36
5	Chase Manhattan Bank	69	93	34
6	Boeing Computer Services, Inc. (BCS)	44	59	33
7	Quotron Systems, Inc.	43	57	32
8	National Data Corporation	40	52	32
9	Compuserve, Inc. (Compuserv Network)	19	25	30
10	Bradford National Corporation	49	63	28

INPUT
MMB3R

EXHIBIT III-5

- 24 -

LARGEST VENDORS OF BATCH SERVICES

REVENUE RANK		COMPANY	NONCAPTIVE U.S. REVENUE ($ MILLIONS)		1979/1980 PERCENT CHANGE
1980	1979		1979	1980	
1	1	Automatic Data Processing, Inc. (ADP)	$216	$260	20%
2	2	Control Data Corporation (CDC)	123	138	12
3	5	Western Geophysical	59	82	39
4	4	Geosource, Inc.	62	77	25
5	3	Tymshare, Inc.	72	71	(1)
6	8	Texas Instruments	44	69	57
7	6	Bank of America Corp.	56	67	20
8	7	CCH Computax, Inc.	48	61	26
9	9	NCR Corporation	40	44	10
10	10	Electronic Data Systems Corporation (EDS)	30	40	33
11	20	Computer Sciences Corporation (CSC)	18	40	122
12	24	Anacomp, Inc.	15	36	135
13	11	Seismographic Services Corporation	29	36	26
14	12	National CSS, Inc.	28	33	18
15	13	Fast-Tax	24	30	25
16	17	Mellon Bank Data Center	20	27	35
17	18	Digicon, Inc.	19	27	39

INPUT
MMB3R

- Western Geophysical moved up two positions to number 3 in the ranking whereas Tymshare lost a similar amount of ground.

    - Western Geophysical has benefited from the increased exploration activities of petroleum companies.

    - Tymshare has lost some of its credit card processing business to in-house operations and its tax processing has been adversely affected by price increases.

- Nearly a third of the companies on this list are in the seismic data processing business.

    - Western Geophysical.

    - Geosource, Inc.

    - Texas Instruments.

    - Seismographic Services Corporation.

    - Digicon, Inc.

- Three of the firms are the largest tax processing services, with 65% of that marketplace.

    - CCH Computax, Inc.

    - Tymshare, Inc.

    - Fast-Tax.

- Two banks, the Bank of America and Mellon Bank, and two computer manufacturers, CDC and TI, also appear on the list.

INPUT

- The leading growth companies in batch processing services are shown in Exhibit III-6.

- Anacomp was the fastest growing in this service mode, but more than half of its growth came from acquisitions.

- The second ranking company, CSC, also derived a large portion of its growth from acquisitions.

- The three seismic processing services firms which fill out the balance of the list all grew entirely from internal growth fueled by the spectacular growth of their clients in the petroleum industry.

D.   FACILITIES MANAGEMENT SERVICES

- The largest vendors of facilities management (FM) services are shown in Exhibit III-7.

- EDS continues to maintain its position as the largest services vendor providing facilities management services.

  - EDS provides FM services to the insurance industry, government-funded health insurance, and other clients in banking, manufacturing, and government agencies.

  - EDS is not expected to relinquish its leadership position in FM services for some time. It has maintained a six-year average annual growth rate in revenues of 25%.

- Securities Industry Automation provides back-office services to the brokerage industry. It is jointly owned by the New York and American Stock Exchanges.

INPUT

EXHIBIT III-6

LARGEST INCREASES IN REVENUES OF
BATCH SERVICES OVER $25 MILLION

RANK	COMPANY	NONCAPTIVE U.S. REVENUE ($ MILLIONS)		1979/1980 PERCENT CHANGE
		1979	1980	
1	Anacomp, Inc.	$15	$36	135%
2	Computer Sciences Corporation (CSC)	18	40	122
3	Texas Instruments	44	69	57
4	Western Geophysical	59	82	39
5	Digicon, Inc.	19	27	39

INPUT
MMB3R

EXHIBIT III-7

LARGEST VENDORS OF FACILITIES MANAGEMENT

REVENUE RANK		COMPANY	NONCAPTIVE U.S. REVENUE ($ MILLIONS)		1979/1980 PERCENT CHANGE
1980	1979		1979	1980	
1	1	Electronic Data Systems Corporation (EDS)	$200	$253	27%
2	2	Securities Industry Automation	71	86	21
3	3	Shared Medical Systems Corporation	56	72	29
4	4	McDonnell Douglas Automation Company (MCAUTO)	48	57	17
5	5	Bradford National Corporation	34	39	15
6	6	Systematics	26	31	22
7	7	System Development Corporation (SDC))	18	28	56
8	9	SEI Corporation	17	22	29
9	8	Computer Network Corporation (COMNET)	18	16	(10)
10	10	Boeing Computer Services, Inc. (BCS)	17	15	(12)
11	11	National Data Corporation	14	15	6
12	14	Computer Company, The	8	14	68
13	13	Medicus Systems Corporation	9	11	20
14	23	Automatic Data Processing, Inc. (ADP)	4	10	150

INPUT
MMB3R

- Shared Medical Systems (SMS) is the largest computer services vendor to the hospital industry.

  - Both network and minicomputer based services are provided.

  - Processing services to physicians are also offered through the SMS network.

- McDonnell Douglas Automation Company (MCAUTO) is the second largest computer services vendor to the hospital industry.

  - MCAUTO's Health Services Division provides shared processing and minicomputer based services to over 1,000 hospitals and 100 other health care facilities.

  - This division contributed 48% of MCAUTO's processing revenues in 1980.

- Bradford National Corporation, the fifth ranking FM vendor, provides a comprehensive range of computerized recordkeeping for the securities industry, and systems development and facilities management services to financial institutions, industry, and government.

- SDC derives most of its FM services revenues from government funded health insurance.

- SEI Corporation specializes in providing personal trust information systems to trust departments of commercial banks.

- Computer Network Corporation (COMNET) generates 90% of its revenues from federal government departments and agencies.

- The Computer Company (TCC) derives a majority of its revenues from Medicaid contracts.

INPUT

- Computer services companies with over $10 million in revenue provide 73% of all FM services in the U.S.

- ADP was the fastest growing FM services company with over $10 million in revenue in 1980, as shown in Exhibit III-8. These revenues came largely as the result of sales of their User Site Hardware Services (USHS) On-Site.

- 30 -

INPUT

EXHIBIT III-8

- 31 -

LARGEST INCREASES IN REVENUES OF
FACILITIES MANAGEMENT OVER $10 MILLION

RANK	COMPANY	NONCAPTIVE U.S. REVENUE ($ MILLIONS)		1979/1980 PERCENT CHANGE
		1979	1980	
1	Automatic Data Processing, Inc. (ADP)	$ 4	$10	150%
2	The Computer Company	8	14	68
3	System Development Corporation (SDC)	18	28	56
4	SEI Corporation	17	22	29
5	Shared Medical Systems Corporation	56	72	29

INPUT
MMB3R

IV SOFTWARE PRODUCTS

IV   SOFTWARE PRODUCTS

A.   TOTAL SOFTWARE PRODUCTS

- Thirty companies derive more than $10 million in revenue from the sale of software products in the U.S., as shown in Exhibit IV-1.

- Companies with over $10 million in computer services revenues have a 53% share of the software products market in the U.S.

- The top 10 vendors of software products have 38% of the software products marketplace.

- Software products is the only computer services marketplace in which a single vendor, IBM, dominates the market.

    - IBM has a 23% share of the U.S. software products marketplace.

    - IBM is more than seven times larger than its nearest competitor.

    - With a current growth rate of 40%, (nearly 25% higher than the software products industry growth rate of 31%), IBM clearly will lead this industry for many years to come.

- The top six largest vendors of software products are computer manufacturers.

INPUT

EXHIBIT IV-1

- 34 -

LARGEST VENDORS OF SOFTWARE PRODUCTS

REVENUE RANK		COMPANY	NONCAPTIVE U.S. REVENUE ($ MILLIONS)		1979/1980 PERCENT CHANGE
1980	1979		1979	1980	
1	1	International Business Machines Corporation (IBM)	$425	$595	40%
2	2	Control Data Corporation (CDC)	70	80	14
3	3	Sperry Corporation	50	55	10
4	4	Burroughs Corporation	50	47	(6)
5	6	Digital Equipment Corporation (DEC)	35	47	34
6	5	Honeywell, Inc.	40	45	13
7	8	Management Science America, Inc.	32	41	26
8	7	NCR Corporation	35	40	14
9	10	Hewlett-Packard Company	20	28	40
10	11	University Computing Company (WYLY)	19	27	40
11	9	Informatics, Inc.	25	26	3
12	12	Pansophic Systems, Inc.	16	24	50
13	28	Cullinane Corporation	13	21	62
14	15	Applied Data Research	14	20	38
15	13	Texas Instruments	15	18	20
16	21	Tandy Corporation	10	16	60
17	17	Cincom Systems, Inc.	13	16	21
18	16	Kirchman Corporation	14	15	11
19	14	Data General Corporation	15	15	0
20	28	McCormack and Dodge	7	14	99
21	19	Insurance Systems of America	11	14	33
22	24	Westinghouse Corporation	8	14	69
23	20	Technican Medical Information Systems	10	13	30
24	23	Boeing Computer Services, Inc. (BCS)	9	13	49
25	29	Software AG of North America, Inc.	7	12	67
26	22	Software International Corporation	9	11	23
27	30	Computer Associates, Inc.	7	10	43
28	35	Apple Computer	5	10	100
29	45	Anacomp, Inc.	3	10	276
30	27	Boole and Babbage	8	10	28

INPUT
MMB3R

- Only two noncomputer manufacturers are among the top 10 vendors of software products.

- Management Science America, Inc. (MSA) is the largest independent software products vendor in the U.S. with $41 million in software revenue.

  - MSA was one of the first vendors to offer packaged applications software as its sole endeavor in the late 1960s.

  - All of MSA's revenues are derived from general business application software products.

- Only two computer manufacturers made it to the list of the 10 fastest growing software product vendors, as shown in Exhibit IV-2.

- Anacomp leads the list with 276% growth in the 1979-1980 period.

- Apple computer had the fastest growth for a computer manufacturer.

  - Apple is expected to increase its growth rate in 1981 to at least 200% and, perhaps, as high as 400%.

  - Apple's software products growth will be driven by several factors.

    - The extraordinary growth of its installed hardware base creates an automatic demand for its systems software which is being sold at increased prices.

    - It has increased its emphasis on applications software developed internally as well as through outside developers.

INPUT

EXHIBIT IV-2

LARGEST INCREASE IN REVENUES OF
SOFTWARE PRODUCTS OVER $10 MILLION

RANK	COMPANY	NONCAPTIVE U.S. REVENUE ($ MILLIONS)		1979/1980 PERCENT CHANGE
		1979	1980	
1	Anacomp, Inc.	$3	$10	276%
2	Apple Computer	5	10	100
3	McCormack and Dodge	7	14	99
4	Westinghouse Corporation	8	14	69
5	Software AG of North America	7	12	67
6	Cullinane Corporation	13	21	62
7	Tandy Corporation	10	16	60
8	Pansophic Systems	16	24	50
9	Boeing Computer Services	9	13	49
10	Computer Associates	7	10	43

INPUT
MMB3R

- Apple's growth in the software products market is likely to slow substantially in 1982 as newer and stronger competitors challenge its leadership in the personal computer marketplace. IBM, Xerox, Nippon Electric Corporation, and Fujitsu will be a few of the challengers.

- Tandy Corporation, the other computer manufacturer on the list, also owes its growth in software products to its tremendous growth in the personal computer marketplace.

    - Tandy has not taken as aggressive a posture in the software market as Apple, but is expected to do so in the future.

    - If Tandy can acquire or develop a good line of applications software, its distribution system offers the potential of dramatic sales increases.

- The leading independent software products vendor in sales growth is McCormack and Dodge.

- Boeing Computer Services is the only vendor on the list which is primarily a processing services firm.

B.   APPLICATIONS SOFTWARE PRODUCTS

- More than a third of the largest applications software products vendors are computer manufacturers, as shown in Exhibit IV-3.

- IBM is the largest vendor with more than twice as much revenue as its nearest competitor.

- MSA is the largest independent vendor of applications software products.

INPUT

EXHIBIT IV-3

LARGEST VENDORS OF APPLICATION SOFTWARE PRODUCTS

REVENUE RANK		COMPANY	NONCAPTIVE U.S. REVENUE ($ MILLIONS)		1979/1980 PERCENT CHANGE
1980	1979		1979	1980	
1	1	International Business Machines Corporation (IBM)	$ 75	$105	40%
2	2	Management Science America, Inc.	32	41	26
3	4	Kirchman Corporation	14	15	11
4	14	McCormack and Dodge	7	14	99
5	5	Insurance Systems of America	11	14	33
6	3	Burroughs Corporation	15	14	(7)
7	7	Digital Equipment Corporation (DEC)	10	14	40
8	6	Technicon Medical Information Systems	10	13	30
9	8	NCR Corporation	10	12	20
10	10	Software International Corporation	9	11	23
11	9	Honeywell, Inc.	10	11	10
12	11	University Computing Company (WYLY)	8	10	22
13	25	Anacomp, Inc.	3	10	276

INPUT
MMB3R

- The 10 largest vendors of applications software have 18% of the applications software products marketplace.

- The leader in sales growth of applications software products is Anacomp, as shown in Exhibit IV-4.

  - Anacomp is primarily a processing services company specializing in the micrographics area.

  - About a third of Anacomp's growth in the applications software market is due to acquisitions.

- McCormack and Dodge is the fastest growing vendor of applications software products dedicated primarily to selling software prducts.

- DEC's strong showing on the list is a result of its strategy of decreasing its dependence on OEM vendors in the sale of turnkey type solutions to customers.

C.   SYSTEMS SOFTWARE PRODUCTS

- The systems software marketplace is dominated by the computer manu-facturers who make up half the list of the largest vendors of systems software shown in Exhibit IV-5.

- IBM, the leader, accounts for 34% of all systems software products sold in the U.S.

- The 10 largest vendors of systems software products share 54% of the systems software marketplace.

- Pansophic Systems is the largest independent systems software products vendor in the U.S.

INPUT

EXHIBIT IV-4

LARGEST INCREASES IN REVENUES OF
APPLICATIONS SOFTWARE PRODUCTS OVER $10 MILLION

RANK	COMPANY	NONCAPTIVE U.S. REVENUE ($ MILLIONS)		1979/1980 PERCENT CHANGE
		1979	1980	
1	Anacomp, Inc.	$ 3	$ 10	276%
2	McCormack and Dodge	7	14	99
3	International Business Machines Corporation (IBM)	75	105	40
4	Digital Equipment Corporation (DEC)	10	14	40
5	Insurance Systems of America	11	14	33

INPUT
MMB3R

EXHIBIT IV-5

- 4| -

LARGEST VENDORS OF SYSTEMS SOFTWARE PRODUCTS

REVENUE RANK		COMPANY	NONCAPTIVE U.S. REVENUE ($ MILLIONS)		1979/1980 PERCENT CHANGE
1980	1979		1979	1980	
1	1	International Business Machines Corporation (IBM)	$350	$490	40%
2	2	Control Data Corporation (CDC)	70	80	14
3	4	Honeywell, Inc.	30	34	13
4	3	Burroughs Corporation	35	33	(6)
5	5	Digital Equipment Corporation (DEC)	25	33	32
6	6	NCR Corporation	25	28	12
7	7	Pansophic Systems, Inc.	16	24	50
8	10	Cullinane Corporation	13	21	62
9	8	Hewlett-Packard Company	15	20	33
10	9	Applied Data Research	14	19	38
11	12	University Computing Company (WYLY)	11	17	52
12	11	Cincom Systems, Inc.	13	15	21
13	15	Software AG of North America, Inc.	7	12	67
14	16	Computer Associates, Inc.	7	10	43
15	13	Data General Corporation	10	10	0
16	14	Boole and Babbage	8	10	28

INPUT
MMB3R

- All of Pansophic's system software products are designed for large-scale IBM computers.

- Pansophic's most successful product is Panvalet with more than 3,300 installations.

- Cullinane Corporation, eighth largest vendor, is the second largest independent systems software products vendor.

  - Cullinane's principal product is a data base management system called IDMS (Integrated Data Base Management System).

  - All of Cullinane's products are designed to operate on IBM and IBM compatible mainframes. A version of IDMS is available for the DEC PDP-11.

- The fastest growing systems software products vendors are shown in Exhibit IV-6.

- All are independent software products vendors. With the exception of University Computing Company (UCC), which has a substantial processing business, all are primarily in the software products business.

- The systems software products sales growth leader is Software AG of North America.

  - The company's principal product is ADABAS (the Adaptable DAta BAse System), a data base management system using inverted file techniques, data compression, space management, and automatic file protection.

  - ADABAS is sold primarily in the IBM marketplace. A DEC PDP-11 version is also available.

- UCC is the third fastest growing systems software products vendor.

INPUT

EXHIBIT IV-6

- 43 -

LARGEST INCREASES IN REVENUES OF
SYSTEMS SOFTWARE PRODUCTS OVER $10 MILLION

RANK	COMPANY	NONCAPTIVE U.S. REVENUE ($ MILLIONS)		1979/1980 PERCENT CHANGE
		1979	1980	
1	Software AG of North America	$ 7	$12	67%
2	Cullinane Corporation	13	21	62
3	University Computing Company (WYLY)	11	17	52
4	Pansophic Systems	16	24	50
5	Computer Associates	7	10	43

INPUT
MMB3R

- UCC has been known since its founding as a processing services firm.

- It is now rapidly evolving into a software products firm as its software products sales have been growing at a rate more than double that of processing services sales.

- At least 10 different systems software products are sold by UCC.

- Computer Associates, like Software AG, has its roots in Europe. It is fifth on the list.

    - Computer Associates' products are all designed to operate on large-scale IBM mainframes.

    - The company's principal product is CA-SORT, a sorting system which replaces IBM's sort/merge on IBM 360 and 370 series CPUs.

INPUT

V PROFESSIONAL SERVICES

V PROFESSIONAL SERVICES

A. TOTAL PROFESSIONAL SERVICES

- Computer services companies with over $10 million in revenue sell 68% of all professional services in the U.S.

- Companies which are primarily professional services companies have 61% of the market.

- The 10 largest vendors of professional services shown in Exhibit V-1 share 35% of the professional services market in the U.S.

- CSC, the largest professional services vendor, has 10% of the entire market.

- Only two computer manufacturers, IBM and CDC, are on the list. They are ranked numbers 4 and 8 respectively.

- Three Big Eight CPA firms are among the largest vendors of professional services.

    - Number 2 - Arthur Andersen and Co.

    - Number 10 - Peat, Marwick, and Mitchell.

INPUT

EXHIBIT V-1

- 46 -

LARGEST VENDORS OF PROFESSIONAL SERVICES

REVENUE RANK		COMPANY	NONCAPTIVE U.S. REVENUE ($ MILLIONS)		1979/1980 PERCENT CHANGE
1980	1979		1979	1980	
1	1	Computer Sciences Corporation (CSC)	$273	$337	24%
2	3	Arthur Andersen and Company	120	156	30
3	2	System Development Corporation (SDC)	133	136	2
4	4	International Business Machines Corporation (IBM)	100	135	35
5	5	Mitre Corporation	99	124	25
6	6	Electronic Data Systems Corporation (EDS)	69	88	27
7	7	Planning Research Corporation (PRC)	64	77	21
8	8	Control Data Corporation (CDC)	55	70	27
9	10	Grumman Data Systems	41	51	25
10	11	Peat, Marwick, Mitchell & Co.	40	50	25
11	9	Systems Consultants, Inc.	42	46	10
12	14	Science Applications, Inc.	30	37	25
13	13	Systems and Computer Technology	31	37	19
14	19	C.A.C.I., Inc.	21	37	79
15	16	Ernst and Whinney	26	37	40
16	12	Informatics, Inc.	33	31	(4)
17	17	Arthur D. Little, Inc.	25	31	24
18	15	American Management Systems, Inc.	27	30	10
19	25	Lambda Technology	18	27	50
20	18	Logicon Inc.	23	27	17
21	23	Bolt Beranek and Newman, Inc.	20	25	27

INPUT
MMB3R

- Number 5 - Ernst and Whinney.

- A management consulting firm, Arthur D. Little, is seventeenth on the list.

- The fastest growing professional services firms are shown in Exhibit V-2.

- C.A.C.I., Inc. was the fastest growing professional services firm in 1980 with a 79% growth rate.

    - This publicly owned international corporation specializes in solving managerial and operational problems for government, commerce, and industry, and in the application of research, analysis, and computer software techniques.

    - Much of its revenue growth in 1980 resulted primarily from increased levels of business with existing customers.

- Lambda Technologies was recently acquired by General Electric Information Services Company.

- Some companies appearing on this list are not in the following subcategories because a finer estimate of revenue sources could not be determined with a high degree of accuracy.

B.   GOVERNMENT PROFESSIONAL SERVICES

- Fifty-one percent of professional services were sold to federal, state, and local governments and their departments and agencies in 1980.

- A large portion of these sales were made by vendors with over $10 million in computer services revenues.

INPUT

EXHIBIT V-2

LARGEST INCREASES IN REVENUES OF
PROFESSIONAL SERVICES OVER $25 MILLION

RANK	COMPANY	NONCAPTIVE U.S. REVENUE ($ MILLIONS)		1979/1980 PERCENT CHANGE
		1979	1980	
1	C.A.C.I., Inc.	$ 21	$ 37	79%
2	Lambda Technology	18	27	50
3	Ernst and Whinney	26	37	40
4	International Business Machines Corporation (IBM)	100	135	35
5	Arthur Andersen and Company	120	156	30
6	Electronic Data Systems Corporation (EDS)	69	88	27
7	Control Data Corporation (CDC)	55	70	27
8	Bolt Beranek and Newman, Inc.	20	25	27
9	Mitre Corporation	99	124	25
10	Grumman Data Systems	41	51	25

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- Forty-two percent of all professional services sales made to governments were made by the 10 largest vendors of professional services, as shown in Exhibit V-3.

- CSC is the largest vendor of professional services to governments. The majority of these sales were to the federal government.

- The fastest growing vendors of professional services to governments are shown in Exhibit V-4.

- Science Management Corporation is the fastest growing vendor, with 300% growth in 1980.

  - A major portion of this growth came from acquisitions.

  - Science Management's principal business is engineering and environmental consulting.

  - Their larger professional services clients include the U.S. Department of Housing and Urban Development, the U.S. Geological Survey, the U.S. Postal Services, and the U.S. Department of the Interior.

- Sterling Systems is the second fastest growing supplier of professional services to government organizations.

  - Approximately 75% of their work is done for the Department of Defense, Department of Transportation, and Department of Energy.

  - The balance of this professional services revenues comes from work done for Health and Human Services and Social Security.

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EXHIBIT V-3

LARGEST VENDORS OF GOVERNMENT
PROFESSIONAL SERVICES

REVENUE RANK		COMPANY	NONCAPTIVE U.S. REVENUE ($ MILLIONS)		1979/1980 PERCENT CHANGE
1980	1979		1979	1980	
1	1	Computer Sciences Corporation (CSC)	$260	$319	23%
2	2	System Development Corporation (SDC)	125	125	0
3	3	Electronic Data Systems Corporation (EDS)	61	78	28
4	4	Planning Research Corporation (PRC)	56	67	21
5	6	Grumman Data Systems	37	46	25
6	5	Systems Consultants, Inc.	38	41	8
7	7	Systems and Computer Technology	31	37	19
8	9	C.A.C.I., Inc.	20	36	83
9	8	Logicon, Inc.	23	27	17
10	10	Analysts International Corporation	16	20	28
11	11	Bolt Beranek and Newman, Inc.	15	19	27
12	12	Calculon Corporation	14	16	14
13	13	American Management Systems, Inc.	14	15	11
14	15	Technology Development of California	9	15	79
15	23	Science Management Corporation	3	12	300
16	14	OAO	10	12	26
17	18	Softech, Inc.	8	12	57
18	17	Computer Data Systems	8	11	38
19	19	Sterling Systems	6	11	83

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EXHIBIT V-4

LARGEST INCREASES IN REVENUES OF
GOVERNMENT PROFESSIONAL SERVICES OVER $10 MILLION

RANK	COMPANY	NONCAPTIVE U.S. REVENUE ($ MILLIONS)		1979/1980 PERCENT CHANGE
		1979	1980	
1	Science Management Corporation	$ 3	$12	300%
2	Sterling Systems	6	11	83
3	C.A.C.I., Inc.	20	36	83
4	Softech, Inc.	8	12	57
5	Computer Data Systems	8	11	38

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C.   COMMERCIAL PROFESSIONAL SERVICES

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- The largest vendors of professional services to commercial clients are shown in Exhibit V-5.

- Ernst and Whinney, a CPA firm, was the largest vendor of professional services to commercial clients in 1980.

- Since Lambda Technology's acquisition by GEISCO, Advanced Systems, Inc., became the largest independent vendor of professional services to commercial clients, most of which are training services.

- Four of the vendors, MCAUTO, CSC, ADP, and EDS derive significant revenues from processing services.

- Lambda Technology led the list of the fastest growing vendors of professional services to commercial clients, as shown in Exhibit V-6.

EXHIBIT V-5

LARGEST VENDORS OF COMMERCIAL
PROFESSIONAL SERVICES

REVENUE RANK		COMPANY	NONCAPTIVE U.S. REVENUE ($ MILLIONS)		1979/1980 PERCENT CHANGE
1980	1979		1979	1980	
1	1	Ernst and Whinney	$25	$35	40%
2	2	Lambda Technology	17	26	53
3	4	Advanced Systems, Inc.	14	19	36
4	6	Computer Sciences Corporation (CSC)	13	18	39
5	3	McDonnell Douglas Automation Company (MCAUTO)	16	17	10
6	10	Automatic Data Processing, Inc. (ADP)	10	15	50
7	5	American Management Systems, Inc.	13	15	10
8	9	Keane Associates, Inc.	11	12	10
9	12	Systems and Programming Resources, Inc.	9	12	40
10	14	Software Design Associates, Inc.	8	12	46
11	8	AGS Computers, Inc.	11	12	2
12	15	System Development Corporation (SDC)	8	11	38
13	11	Computer Horizons	9	11	17
14	16	Electronic Data Systems Corporation (EDS)	8	10	25
15	13	Planning Research Corporation (PRC)	8	10	21
16	18	Compuware	7	10	48

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EXHIBIT V-6

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LARGEST INCREASES IN REVENUES OF
COMMERCIAL PROFESSIONAL SERVICES OVER $10 MILLION

RANK	COMPANY	NONCAPTIVE U.S. REVENUE ($ MILLIONS)		1979/1980 PERCENT CHANGE
		1979	1980	
1	Lambda Technology	$17	$26	53%
2	Automatic Data Processing, Inc. (ADP)	10	15	50
3	Compuware	7	10	48
4	Software Design Associates, Inc.	8	12	46
5	Ernst and Whinney	25	35	40

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APPENDIX A: ALPHABETICAL LISTING OF THE INPUT DIRECTORY

APPENDIX A: ALPHABETICAL LISTING OF THE INPUT DIRECTORY

- The companies in the INPUT Directory who are the largest vendors of noncaptive U.S. computer services revenues in 1980 are listed in alphabetical order, along with their ranking, in Exhibit A-1.

ALPHABETICAL LISTING OF THE INPUT DIRECTORY

COMPANY	RANKING IN THE INPUT DIRECTORY BY NONCAPTIVE U.S. COMPUTER SERVICES REVENUE, 1980
Accounting Corporation of America	156
Advanced Systems, Inc.	95
Advanced Computer Techniques Corporation	163
ADVO Systems, Inc. (ADVO)	63
Affiliated Computer Systems	139
Agency Records Control, Inc.	114
AGS Computers, Inc.	152
American Management Systems, Inc.	37
Amherst Associates, Inc.	168
Anacomp, Inc.	28
Analysts International Corporation	91
Applied Data Research	86
Apple Computer	175
Arthur Andersen and Company	9
Arthur D. Little, Inc.	58
Arthur Young and Co.	82
Associated Press	141
Astradyne Computer Industries	174
Automatic Data Processing, Inc. (ADP)	4
Automated Concepts	157
Bank of America Corp.	26
BDM International	104
Boeing Computer Services, Inc. (BCS)	17
Bolt Beranek and Newman, Inc.	76
Boole and Babbage	179
Booz-Allen and Hamilton, Inc.	134
Bowne Information Systems, Inc.	132
Bradford National Corporation	12
Bunker Ramo Corporation	48
Burroughs Corporation	30

COMPANY	RANKING IN THE INPUT DIRECTORY BY NONCAPTIVE U.S. COMPUTER SERVICES REVENUE, 1980
Cable Data	75
Calculon Corporation	111
CCH Computax, Inc.	32
CGA Computer Associates	98
Chase Manhattan Bank	18
Cincom Systems, Inc.	109
Citicorp	45
Comdata Network	131
Computer Sciences Corporation (CSC)	3
Compuserve, Inc. (Compuserv Network)	77
Computer Task Group, Inc.	89
Computer Sharing Services, Inc.	97
Computer Network Corporation (COMNET)	100
Computer Company, The	101
Computer Data Systems	113
Compuware	143
Computer Horizons	166
Computer Associates, Inc.	170
Comshare, Inc.	35
Control Data Corporation (CDC)	2
Continuum	128
Coopers and Lybrand	84
Cullinane Corporation	92
Cutler Williams, Inc.	135
Cybernetics and Systems	150
Cycare Systems	127
C.A.C.I., Inc.	53
DASD Corporation	93
Data Resources, Inc. (DRI)	51
Datacrown, Inc.	120

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ALPHABETICAL LISTING OF THE INPUT DIRECTORY

COMPANY	RANKING IN THE INPUT DIRECTORY BY NONCAPTIVE U.S. COMPUTER SERVICES REVENUE, 1980
Data General Corporation	124
Data Communications Corporation	126
Deloitte, Haskins and Sells	158
Dial Computer Systems Corporation	133
Digital Equipment Corporation (DEC)	36
Digicon, Inc.	68
Dow Jones Information Services, Inc.	94
DST, Inc.	146
Dyatron Corp.	74
Electronic Data Systems Corporation (EDS)	5
Equifax, Inc.	40
Ernst and Whinney	59
Execucom Systems Corporation	176
Fast-Tax	66
First Data Resources, Inc.	41
First Computer Corporation	107
General Electric Information Services Company	6
Geosource, Inc.	25
Grumman Data Systems	38
GTE Telenet Information Systems	67
Hewlett-Packard Company	62
Honeywell, Inc.	24
Informatics, Inc.	16
Information Science, Inc.	129
Information Systems Design, Inc.	142
Insurance Systems of America	90
International Business Machines Corporation (IBM)	1
International Computaprint Corporation	99
Intermetrics, Inc.	140
Intel Systems Corporation	169

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ALPHABETICAL LISTING OF THE INPUT DIRECTORY

COMPANY	RANKING IN THE INPUT DIRECTORY BY NONCAPTIVE U.S. COMPUTER SERVICES REVENUE, 1980
Keane Associates, Inc.	110
Keydata Corporation	155
Kirchman Corporation	81
Lambda Technology	70
Litton Mellonics	103
Lockheed Information Systems	108
Logicon Inc.	71
Management Science America, Inc.	50
Manufacturing Data Systems, Inc. (MDSI)	65
Martin Marietta Data Systems	56
Mathematica Inc.	145
McCormack and Dodge	130
McDonnell Douglas Automation Company (MCAUTO)	11
Mead Corporation	79
Medicus Systems Corporation	151
Mellon Bank Data Center	52
Mitre Corporation	14
Monchik-Webber	161
National CSS, Inc.	15
National Data Corporation	29
National Sharedata Corporation	105
NCR Corporation	10
Neshaminey Valley Information Processing	178
Nielsen (A.C.) Company	43
NLT Computer Services Corporation	73
OAO	123
Ohio Cooperative Library Corporation (OCLC)	72
Online Business Systems	164
Optimum Systems, Inc. (OSI)	78
Pansophic Systems, Inc.	80

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ALPHABETICAL LISTING OF THE INPUT DIRECTORY

COMPANY	RANKING IN THE INPUT DIRECTORY BY NONCAPTIVE U.S. COMPUTER SERVICES REVENUE, 1980
Peat, Marwick, Mitchell & Co.	42
Pentamation Enterprises, Inc.	122
Pharmaceutical Card Systems	138
Planning Research Corporation (PRC)	13
Policy Management Systems	119
Poorman-Douglas Corporation	177
Price Waterhouse & Co.	160
Proprietary Computer Systems	173
Quotron Systems, Inc.	34
Rand Information Systems, Inc.	144
Rapidata, Inc.	96
Remote Computing Corporation	154
Reynolds and Reynolds Company, The	47
Safeguard Business Systems, Inc.	136
Safecom, Inc.	171
Science Applications, Inc.	55
Science Management Corporation	116
Science Dynamics Corporation	137
Scientific Computers Inc.	162
Securities Industry Automation	22
SEI Corporation	87
Seismographic Services Corporation	60
Seiscom Delta	118
Shared Medical Systems Corporation	20
Sigma Data Computing	172
Softech, Inc.	112
Software Design Associates, Inc.	125
Software AG of North America, Inc.	149
Software International Corporation	153
Sperry Corporation	27

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ALPHABETICAL LISTING OF THE INPUT DIRECTORY

COMPANY	RANKING IN THE INPUT DIRECTORY BY NONCAPTIVE U.S. COMPUTER SERVICES REVENUE, 1980
Spiridillis Associates	165
Standard and Poors Corporation	102
Statistical Tabulating Corporation	69
Sterling Systems	159
STSC, Inc.	83
Sun Information Services Company	61
System Development Corporation (SDC)	8
Systems Consultants, Inc.	44
Systems and Computer Technology	57
Systematics	64
Systems and Programming Resources, Inc.	147
Systems and Applied Sciences	148
Systems Research Laboratories	167
Tandy Corporation	115
Technican Medical Information Systems	88
Technology Development of California	121
Telecredit, Inc.	46
Telos Computing	106
Texas Instruments	21
Touche Ross & Co.	117
Trans Union Corporation	49
TRW Information Services	31
Tymshare, Inc.	7
United Information Systems	19
University Computing Company (WYLY)	39
U.S. Datacorp	85
Western Geophysical	23
Westinghouse Corporation	54
Xerox Computer Services	33

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APPENDIX B: OTHER SERVICES

APPENDIX B: OTHER SERVICES

- The primary purpose of the research for this study was to identify companies with more than $10 million in noncaptive U.S. computer services revenues; however the research produced information on other sources of revenue which is presented in this appendix.

- Data were gathered on the vendors' participation in turnkey systems and noncaptive foreign computer services.

- Exhibit B-1 shows the largest vendors of turnkey systems among the 179 largest computer services vendors.

- Exhibit B-2 shows those companies with over $10 million in turnkey systems revenue which were the fastest growing from 1979 to 1980.

- Exhibit B-3 shows the largest vendors of noncaptive foreign computer services.

    - Data on this exhibit were gathered only for U.S. computer services companies or foreign companies with a significant amount of U.S. noncaptive computer services revenue.

    - Foreign computer services companies were specifically excluded from this study.

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LARGEST COMPUTER SERVICES VENDORS
OF TURNKEY SYSTEM

REVENUE RANK		COMPANY	NONCAPTIVE U.S. REVENUE ($ MILLIONS)		1979/1980 PERCENT CHANGE
1980	1979		1979	1980	
1	1	Reynolds and Reynolds Company, The	$45	$52	16%
2	2	Logicon Inc.	25	29	17
3	3	Automatic Data Processing, Inc. (ADP)	15	20	33
4	7	McDonnell Douglas Automation Company (MCAUTO)	12	20	73
5	30	University Computing Company (WYLY)	0	19	∞
6	8	Manufacturing Data Systems, Inc. (MDSI)	12	18	53
7	4	Agency Records Control, Inc.	13	16	23
8	9	Trans Union Corporation	10	16	60
9	5	Shared Medical Systems Corporation	12	16	29
10	6	Medicus Systems Corporation	12	15	25

LARGEST INCREASES IN REVENUES OF TURNKEY SYSTEMS OF
COMPUTER SERVICES VENDORS OVER $10 MILLION

RANK	COMPANY	NONCAPTIVE U.S. REVENUE ($ MILLIONS)		1979/1980 PERCENT CHANGE
		1979	1980	
1	McDonnell Douglas Automation	$12	$20	73%
2	Trans Union Corporation	10	16	60
3	Manufacturing Data Systems	12	18	53
4	Automatic Data Processing	15	20	33
5	Shared Medical Systems	12	16	29

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LARGEST VENDORS OF FOREIGN COMPUTER SERVICES

REVENUE RANK		COMPANY	NONCAPTIVE FOREIGN REVENUE ($ MILLIONS)		1979/1980 PERCENT CHANGE
1980	1979		1979	1980	
1	1	General Electric Information Services Company	$110	$145	32%
2	4	Computer Sciences Corporation (CSC)	48	95	98
3	2	Control Data Corporation (CDC)	70	80	14
4	3	Datacrown, Inc.	48	55	15
5	6	Automatic Data Processing, Inc. (ADP)	37	46	26
6	5	University Computing Company (WYLY)	46	46	1
7	7	Arthur Andersen and Company	32	41	28
8	8	Martin Marietta Data Systems	25	41	60
9	10	Comshare, Inc.	20	34	67
10	9	Electronic Data Systems Corporation (EDS)	20	26	27
11	13	Western Geophysical	18	24	33
12	11	Geosource, Inc.	18	23	25
13	12	Cincom Systems, Inc.	18	22	21
14	17	Texas Instruments	11	21	91
15	14	Informatics, Inc.	15	20	32
16	15	United Information Systems	13	17	25
17	16	Applied Data Research	11	14	28
18	22	Management Science America, Inc.	5	11	102
19	18	Seismographic Services Corporation	9	10	18

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- Exhibit B-4 shows the U.S. computer services companies with the fastest growing foreign revenues.

- Exhibits B-5 and B-6 show the largest and fastest growing companies' total noncaptive computer services revenues.

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LARGEST INCREASES IN REVENUES OF
FOREIGN COMPUTER SERVICES OVER $10 MILLION

RANK	COMPANY	NONCAPTIVE FOREIGN REVENUE ($ MILLIONS)		1979/1980 PERCENT CHANGE
		1979	1980	
1	Management Science America	$ 5	$11	102%
2	Computer Sciences Corporation	48	95	98
3	Texas Instruments	11	21	91
4	Comshare, Inc.	20	34	67
5	Martin Marietta Data Systems	25	41	60

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EXHIBIT B-5

LARGEST VENDORS OF U.S. AND FOREIGN COMPUTER SERVICES

REVENUE RANK		COMPANY	NONCAPTIVE REVENUE* ($ MILLIONS)		1979/1980 PERCENT CHANGE	GROWTH RANK
1980	1979		1979	1980		
1	2	International Business Machines Corporation (IBM)	$525	$730	39%	41
2	1	Control Data Corporation (CDC)	548	640	17	128
3	3	Computer Sciences Corporation (CSC)	415	560	35	54
4	4	Automatic Data Processing, Inc. (ADP)	385	481	25	83
5	5	Electronic Data Systems Corporation (EDS)	325	414	27	77
6	6	General Electric Information Services Company	285	347	22	100
7	9	Arthur Andersen and Company	160	205	28	74
8	7	Tymshare, Inc.	165	184	12	148
9	8	System Development Corporation (SDC)	163	177	9	156
10	11	McDonnell Douglas Automation Company (MCAUTO)	123	140	13	140
11	10	NCR Corporation	125	139	11	149
12	13	Bradford National Corporation	110	130	18	124
13	15	National CSS, Inc.	102	127	25	92
14	12	Informatics, Inc.	112	126	12	146
15	14	Planning Research Corporation (PRC)	104	125	20	110
16	16	Mitre Corporation	99	124	25	82
17	17	United Information Systems	95	115	21	103
18	18	Boeing Computer Services, Inc.(BCS)	93	115	24	95
19	25	Texas Instruments	70	108	54	20
20	21	Western Geophysical	77	106	38	45
21	22	Chase Manhattan Bank	75	100	33	56
22	20	Geosource, Inc.	80	100	25	84
23	19	University Computing Company (WYLY)	87	99	14	138
24	24	Shared Medical Systems Corporation	70	91	29	71
25	28	Comshare, Inc.	67	88	32	63
26	23	Securities Industry Automation	71	86	21	104
27	33	Martin Marietta Data Systems	55	78	43	33
28	27	Honeywell, Inc.	69	78	13	141
29	29	Bank of America Corp.	63	74	18	121
30	50	Anacomp, Inc.	38	73	89	7
31	32	Datacrown, Inc.	60	71	18	123
32	30	Sperry Corporation	62	70	13	142
33	34	National Data Corporation	54	67	25	90
34	26	Burroughs Corporation	70	66	(6)	173
35	36	CCH Computax, Inc.	49	62	26	80
36	31	TRW Information Services	62	62	0	170
37	35	Xerox Computer Services	50	59	17	126
38	40	Quotron Systems, Inc.	43	57	32	62
39	44	Digital Equipment Corporation (DEC)	40	54	35	53
40	39	American Management Systems, Inc.	44	53	20	111

*COMPUTER MANUFACTURERS' REVENUES DO NOT INCLUDE FOREIGN COMPUTER SERVICES REVENUES

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EXHIBIT B-5 (CONT.)

LARGEST VENDORS OF U.S. AND FOREIGN COMPUTER SERVICES

REVENUE RANK 1980	REVENUE RANK 1979	COMPANY	NONCAPTIVE REVENUE* ($ MILLIONS) 1979	NONCAPTIVE REVENUE* ($ MILLIONS) 1980	1979/1980 PERCENT CHANGE	GROWTH RANK
41	41	Grumman Data Systems	$43	$53	25%	81
42	37	Equifax, Inc.	47	53	13	143
43	51	Management Science America, Inc.	38	52	37	47
44	38	First Data Resources, Inc.	46	50	9	157
45	45	Peat, Marwick, Mitchell & Co.	40	50	25	85
46	46	Data Resources, Inc. (DRI)	40	48	20	117
47	47	Nielsen (A.C.) Company	40	47	18	125
48	42	Systems Consultants, Inc.	42	46	10	154
49	52	Seismographic Services Corporation	37	46	24	93
50	49	Reynolds and Reynolds Company, The	39	46	16	135
51	139	Citicorp	11	45	309	2
52	66	C.A.C.I., Inc.	26	45	73	12
53	53	Telecredit, Inc.	37	44	18	122
54	48	Bunker Ramo Corporation	40	43	8	159
55	43	Trans Union Corporation	41	43	6	163
56	56	Mellon Bank Data Center	30	40	33	57
57	54	Cincom Systems, Inc.	33	40	21	109
58	63	Westinghouse Corporation	27	38	41	36
59	57	Science Applications, Inc.	30	37	25	91
60	68	Digicon, Inc.	26	37	46	29
61	62	Applied Data Research	29	37	29	69
62	55	Systems and Computer Technology	31	37	19	118
63	58	Arthur D. Little, Inc.	30	37	23	96
64	65	Ernst and Whinney	26	37	40	38
65	60	Manufacturing Data Systems, Inc. (MDSI)	30	36	19	119
66	78	Sun Information Services Company	20	35	75	11
67	69	Hewlett-Packard Company	25	34	36	52
68	64	ADVO Systems, Inc. (ADVO)	26	32	20	116
69	67	Systematics	26	31	22	98
70	72	Fast-Tax	24	30	25	86
71	70	GTE Telenet Information Systems	25	29	16	136
72	82	Dyatron Corp.	20	29	47	26
73	59	Statistical Tabulating Corporation	30	28	(8)	174
74	80	Mead Corporation	20	27	36	50
75	90	Lambda Technology	18	27	50	23
76	73	Logicon Inc.	23	27	17	129
77	74	Ohio Cooperative Library Corporation (OCLC)	23	27	18	120
78	89	Cullinane Corporation	18	27	46	28
79	96	NLT Computer Services Corporation	18	26	50	22
80	85	Advanced Systems, Inc.	19	26	37	49

*COMPUTER MANUFACTURERS' REVENUES DO NOT INCLUDE FOREIGN COMPUTER SERVICES REVENUES

(Continued)

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REVENUE RANK 1980	REVENUE RANK 1979	COMPANY	NONCAPTIVE REVENUE* ($ MILLIONS) 1979	NONCAPTIVE REVENUE* ($ MILLIONS) 1980	1979/1980 PERCENT CHANGE	GROWTH RANK
81	107	Cable Data	$16	$26	65%	15
82	81	Bolt Beranek and Newman, Inc.	20	25	27	79
83	83	Compuserve, Inc. (Compuserve Network)	19	25	30	68
84	88	STSC, Inc.	18	25	37	46
85	61	Optimum Systems, Inc. (OSI)	30	25	(17)	178
86	102	Pansophic Systems, Inc.	16	24	50	24
87	91	Kirchman Corporation	18	24	33	58
88	79	Arthur Young and Co.	20	24	20	112
89	92	Sei Corporation	18	23	28	76
90	86	Coopers and Lybrand	19	23	21	105
91	76	U.S. Datacorp	21	23	9	155
92	97	Insurance Systems Of America	17	22	30	65
93	98	Technican Medical Information Systems	17	22	30	66
94	114	Computer Task Group, Inc.	14	22	59	17
95	77	Rapidata	20	21	5	165
96	101	Analysts International Corporation	17	21	28	72
97	109	Seiscom Delta	15	21	40	37
98	93	DASD Corporation	18	21	17	130
99	94	Dow Jones Information Services, Inc.	18	21	17	131
100	112	Computer Sharing Services, Inc.	14	20	43	32
101	84	CGA Computer Associates	19	20	5	166
102	100	International Computaprint Corporation	17	20	21	107
103	95	Lockheed Information Systems	18	20	12	144
104	75	Computer Network Corporation (COMNET)	22	20	(10)	176
105	116	Computer Company, The	13	19	46	27
106	99	Standard and Poors Corporation	17	19	12	147
107	108	Data Communications Corporation	15	19	22	101
108	117	Litton Mellonics	13	18	40	39
109	118	BDM International	13	18	41	35
110	119	Computer Associates, Inc.	13	18	39	43
111	71	National Sharedata Corporation	25	18	(28)	179
112	121	Telos Computing	13	18	44	30
113	113	First Computer Corporation	14	18	29	70
114	134	Softech Inc.	11	18	57	18
115	106	Keane Associates, Inc.	16	17	10	153
116	110	Calculon Corporation	15	17	13	139
117	103	Agency Records Control, Inc.	16	17	6	162
118	87	Rand Information Systems, Inc.	19	17	(10)	175
119	122	Policy Management Systems	13	17	34	55
120	131	Computer Data Systems	12	16	38	44

*COMPUTER MANUFACTURERS' REVENUES DO NOT INCLUDE FOREIGN COMPUTER SERVICES REVENUES

(Continued)

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LARGEST VENDORS OF U.S. AND FOREIGN COMPUTER SERVICES

REVENUE RANK		COMPANY	NONCAPTIVE REVENUE* ($ MILLIONS)		1979/1980 PERCENT CHANGE	GROWTH RANK
1980	1979		1979	1980		
121	105	Advanced Computer Techniques Corporation	$16	$16	3%	168
122	115	Information Science, Inc.	13	16	21	106
123	123	Boole and Babbage	13	16	28	75
124	169	McCormack and Dodge	8	16	111	5
125	147	Tandy Corporation	10	16	60	16
126	178	Science Management Corporation	4	16	300	3
127	120	Touche Ross & Co.	13	16	23	97
128	173	Continuum	7	16	143	4
129	124	Software International Corporation	13	16	24	94
130	166	Technology Development of California	9	15	79	10
131	125	Pentamation Enterprises, Inc.	13	15	21	108
132	140	Software Design Associates, Inc.	11	15	36	51
133	128	OAO	12	15	25	87
134	111	Data General Corporation	15	15	0	171
135	157	Software AG of North America, Inc.	9	15	67	14
136	143	Cycare Systems	11	15	37	48
137	135	Comdata Network	11	14	28	73
138	126	Bowne Information Systems, Inc.	12	14	17	134
139	141	Dial Computer Systems Corporation	11	14	27	78
140	129	Booz-Allen and Hamilton, Inc.	12	14	17	132
141	136	Cutler Williams, Inc.	11	14	25	88
142	104	Keydata Corporation	16	14	(13)	177
143	138	Safeguard Business Systems, Inc.	11	14	25	89
144	145	Science Dynamics Corporation	10	14	33	61
145	154	Mathematica Inc.	9	13	43	31
146	142	Pharmaceutical Card Systems	11	13	22	102
147	155	Affiliated Computer Systems	9	13	42	34
148	148	Intermetrics, Inc.	10	13	30	67
149	130	Associated Press	12	13	8	158
150	137	Intel Systems Corporation	11	13	17	127
151	179	Execucom Systems Corporation	2	13	459	1
152	127	Information Systems Design, Inc.	12	13	7	161
153	165	Compuware	9	13	52	21
154	149	Accounting Corporation Of America	10	12	20	113
155	158	DST, Inc.	9	12	33	59
156	164	Systems And Programming Resources, Inc.	9	12	40	40
157	174	Systems And Applied Sciences	7	12	85	8
158	150	Cybernetics And Systems	10	12	20	114
159	151	Medicus Systems Corporation	10	12	20	115
160	132	AGS Computers, Inc.	12	12	4	167

*COMPUTER MANUFACTURERS' REVENUES DO NOT INCLUDE FOREIGN COMPUTER SERVICES REVENUES

(Continued)

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REVENUE RANK		COMPANY	NONCAPTIVE REVENUE* ($ MILLIONS)		1979/1980 PERCENT CHANGE	GROWTH RANK
1980	1979		1979	1980		
161	133	Remote Computing Corporation	$12	$12	2%	169
162	144	Automated Concepts	10	11	11	150
163	159	Deloitte, Haskins and Sells	9	11	22	99
164	176	Sterling Systems	6	11	83	9
165	168	Systems Research Laboratories	8	11	33	60
166	153	Price Waterhouse & Co.	10	11	16	137
167	167	Monchik-Webber	8	11	31	64
168	146	Scientific Computers Inc.	10	11	7	160
169	172	Online Business Systems	7	11	54	19
170	171	Spiridillis Associates	7	11	50	25
171	160	Computer Horizons	9	11	17	133
172	175	Amherst Associates, Inc.	6	10	68	13
173	152	Safecom, Inc.	10	10	0	172
174	161	Sigma Data Computing	9	10	11	151
175	162	Proprietary Computer Systems	9	10	11	152
176	170	Astradyne Computer Industries	7	10	39	42
177	177	Apple Computer	5	10	100	6
178	156	Poorman-Douglas Corporation	9	10	6	164
179	163	Neshaminey Valley Information Processing	9	10	12	145

*COMPUTER MANUFACTURERS' REVENUES DO NOT INCLUDE FOREIGN COMPUTER SERVICES REVENUES

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LARGEST INCREASES IN REVENUES OF
U.S. AND FOREIGN COMPUTER SERVICES OVER $50 MILLION

RANK	COMPANY	NONCAPTIVE REVENUE ($ MILLIONS)		1979/1980 PERCENT CHANGE
		1979	1980	
1	Anacomp, Inc.	$ 38	$ 73	89%
2	Texas Instruments	70	108	54
3	Martin Marietta Data Systems	55	78	43
4	International Business Machines Corporation (IBM)*	525	730	39
5	Western Geophysical	77	106	38
6	Management Science America	38	52	37
7	Digital Equipment Corporation*	40	54	35
8	Computer Sciences Corporation	415	560	35
9	Chase Manhattan Bank	75	100	33
10	Quotron Systems	43	57	32

*COMPUTER MANUFACTURERS' REVENUES DO NOT INCLUDE FOREIGN COMPUTER SERVICES REVENUES

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APPENDIX C: DEFINITION OF TERMS

APPENDIX C: DEFINITION OF TERMS

A.   REVENUES

- <u>TOTAL COMPUTER SERVICES REVENUES</u> - Revenues received from services provided by vendors which perform data processing functions using vendor computers (processing services), or assist users to perform such functions on their own computers (software products and/or professional services).

- <u>CAPTIVE COMPUTER SERVICES REVENUES</u> - Revenues received from users who are part of the same parent corporation as the vendors.

- <u>NONCAPTIVE COMPUTER SERVICES REVENUES</u> - Revenues received for computer services provided <u>within</u> the United States from uers who are <u>not</u> part of the same parent corporation as the vendor.

- <u>NONCAPTIVE FOREIGN COMPUTER SERVICES REVENUES</u> - Revenues received for computer services provided <u>outside</u> the United States from users who are <u>not</u> part of the same parent corporation as the vendor.

B.   SERVICE MODES

<u>COMPUTER SERVICES</u> - These are services provided by vendors which perform data

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processing functions using vendor computers (processing services) or assist users to perform such functions on their own computers (software products and/or professional services).

PROCESSING SERVICES

- Remote Computing Services. Provision of data processing to a user by means of terminals at the user's site(s) connected by a data communications network to the vendor's central computer. The three submodes of RCS are:

    • Interactive (timesharing) is characterized by interaction of the user with the system, primarily for problem solving timesharing but also for data entry and transaction processing: the user is on-line to the program/files.

    • Remote Batch is where the user hands over control of a job to the vendor's computer which schedules job execution according to priorities and resource requirements.

    • Data Base inquiry is characterized by the retrieval of information from a vendor maintained data base. This may be owned by the vendor or a third party.

    • User Site Hardware Services (USHS). These are offerings, typically provided by RCS vendors, which place programmable hardware on the user site (as compared to the EDP center). USHS offers:

        - Access to a communications network.

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- Access through the network to the RCS vendor's larger computers.

- Significant software as part of the service.

- <u>Batch Services.</u> This includes data processing performed at vendors' sites of user programs and/or data which are physically transported (as opposed to electronically by telecommunications media) to and/or from those sites. Data entry and data output services, such as keypunching and COM processing, are also included. Batch services include those expenditures by users which take their data to a vendor site which has a terminal connected to a remote computer used for the actual processing.

- <u>Facilities Management (FM).</u> (Also referred to as "Resource Management" or "Systems Management.") The management of all or part of a user's data processing functions under a long-term contrct (not less than one year). To qualify as FM, the contractor must directly plan and control as well as operate the facility provided to the user on-site through communications lines or mixed mode. Simply providing resources, even though under a long-term contract, and/or providing for all of a users' processing needs, does not necessarily qualify as FM.

PROFESSIONAL SERVICES

This category is made up of services related to EDP, including professional services facility management, system design, custom/contract programming, consulting, education, and training. Services are provided on the basis of:

- <u>Time and Materials</u> - The billing rate is measured in units of time, rather than actual costs.

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-     <u>Fixed Price</u> - A firm price is agreed upon for a defined piece of work.

-     <u>Cost Plus Fee</u> - The billing rate depends on actual costs plus a fixed fee.

SOFTWARE PRODUCTS

This category includes the user's purchase of applications and systems packages for use on in-house computer systems. Included are lease and purchase expenditures as well as fees for work performed by the vendor to implement and maintain the package at the user's site(s). Fees for work performed by organizations other than the package vendor are counted in professional services. There are several subcategories of software products:

-     <u>Application Products</u> are software products which perform processing to serve user functions. They consist of:

  -     <u>Cross-industry products</u>, which are used in multiple-user industry sectors. Examples are payroll, inventory control, and financial planning.

  -     <u>Industry-specialized products</u>, which are used in a specific industry sector such as banking and finance, transportation, or discrete manufacturing. Examples are demand deposit accounting and airline scheduling.

-     <u>System Products</u> are software products which enable the computer/ communications system to perform basic functions. They consist of:

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- System operations products, which function during applications program execution to manage the computer system resource. Examples include operating systems, DBMS, communication monitors, emulators, and spoolers.

- System utilization products, used by operations personnel to utilize the computer system more effectively. Examples include performance measurement, job accounting, computer operations scheduling, and utilities.

- System implementation products, used to prepare applications for execution by assisting in designing, programming, testing, and related functions. Examples include languages, sorts, productivity aids, data dictionares, report writers, project control systems, and retrieval systems.

TURNKEY SYSTEMS

A turnkey system is a combination of hardware and software integrated into a total system designed to fulfill the processing requirements of an application (or applications) for a user.

C.   OTHER CONSIDERATIONS

- All expenditures and revenues addressed are "noncaptive" in that they are open for competition. "Captive" figures, which refer to expenditures by a user for services from a subsidiary company, such as Boeing Aircraft with Boeing Computer Services (BCS), are not included.

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- When any questions arise as to the proper place to count certain user expenditures, INPUT addresses the questions from the user viewpoint and categorizes the expenditures according to the answer to the question, "What do the users perceive they are buying?"

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